

## DEPARTMENT SUMMARY

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### **OVERVIEW:**

The Department of Meteorology provides graduate-level instruction in the science of meteorology and its application in support of military operations. To maintain expertise and provide support to student theses, the faculty performs research in the Navy-relevant areas of synoptic and dynamic meteorology, remote sensing, numerical modeling, tropical meteorology, boundary layer meteorology, and environmental effects.

Over 40 years ago, NPS was responsible for the establishment and flourishing of a Navy operational command on its campus. In 1959, the Naval Oceanographic Command moved its numerical prediction center to Monterey as a new operational command, the Fleet Numerical Weather Central (now, Fleet Numerical Meteorology and Oceanography Center-FNMOC). The Navy chose to move FNMOC to Monterey to take advantage of the presence of NPS with its large assembly of science faculty who are intimately familiar with Navy operational problems in meteorology and oceanography. For similar reasons, the Navy Environmental Prediction Research Facility (now the Marine Meteorology Division of the Naval Research Laboratory-NRL-Monterey), moved to Monterey in 1971. This further augmentation of meteorological and oceanographic scientists in Monterey, has made it the center of Naval environmental science.

The consequences of these moves are the substantial involvement of NPS faculty in research projects at NRL-Monterey and the enhancement of operational capabilities at FNMOC. Furthermore, personnel from the latter two organizations are able to take advanced courses at NPS, and officer-students at NPS can engage in thesis research on “real-life” applications relating environmental parameters to Naval operations.

### **CURRICULA SERVED:**

- Meteorology
- Meteorology and Physical Oceanography
- Space Systems Operations
- Space Systems Engineering
- Electronic Warfare

### **DEGREES GRANTED:**

- Master of Science in Meteorology
- Master of Science in Meteorology and Physical Oceanography
- Doctor of Philosophy in Meteorology

### **RESEARCH THRUSTS:**

- Synoptic, Mesoscale, and Coastal Meteorology:  
Distinguished Professor Russell Elsberry, Associate Professor Wendell Nuss, Professor Carlyle Wash, Research Assistant Professor Douglas Miller, Research Associate Professor Patrick Harr
- Numerical Weather Prediction (NWP):  
Professor Roger Williams, Research Associate Hway-Jen Chen, Research Assistant Professor Kevin Cheung, Research Assistant Professor Douglas Miller
- Environmental Analysis and Visualization:  
Research Associate Mary Jordan
- Air-Sea Interactions:  
Professor Kenneth Davidson, Professor Robert Haney, Research Associate Paul Frederickson
- Satellite and Ground Based Remote Sensing:  
Professor Phillip Durkee, Research Associate Kurt Nielsen
- Tropical Meteorology:  
Professor Chih-Pei Chang, Research Associate Hway-Chen, Research Associate Professor Patrick Harr, Research Assistant Professor Kevin Cheung

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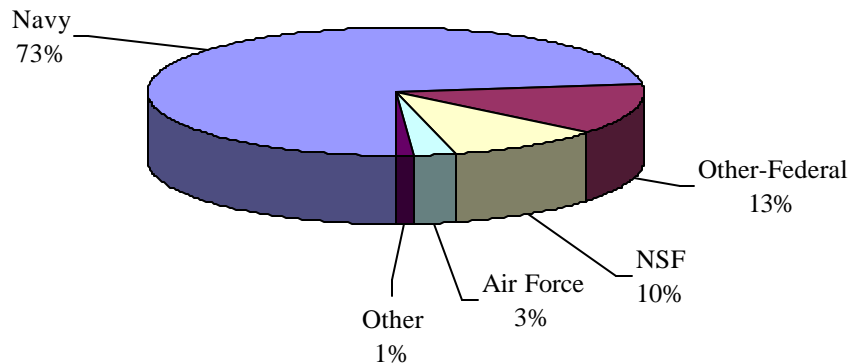
- Tropical Cyclone Motion:  
Distinguished Professor Russell Elsberry, Research Assistant Professor Kevin Cheung, Research Associate Professor Patrick Harr
- Boundary Layer Meteorology:  
Professor Kenneth Davidson, Associate Professor Qing Wang
- Climate Dynamics:  
Professor Chih-Pei Chang, Professor Roger Williams, Research Associate Hway-Jen Chen, Senior Lecturer Tom Murphee
- Atmospheric Factors in EM/EO Propagation:  
Professor Kenneth Davidson, Research Associate Professor Peter Guest, Research Associate Paul Fredrickson
- Polar Meteorology:  
Research Associate Professor Peter Guest

### RESEARCH FACILITIES:

- **IDEA Laboratory:** The Interactive Digital Environmental Analysis (IDEA) laboratory has Silicon Graphics workstations specifically designed and funded for instruction. The lab computers are used to analyze and display real-time satellite data and numerical model output.
- **Tactical Laboratory:** The Tactical Lab operates an SMQ-11 DMSP satellite receiver that collects and processes classified environmental data and runs military tactical decision aids used to support operations.
- **Synoptic Analysis and Forecasting Laboratory:** The Synoptic Analysis and Forecasting Lab uses a suite of computers and advanced display devices to provide local and global real-time meteorological data and numerical products for instruction and research in operational weather forecasting.
- **Atmospheric Boundary Layer Measurements Laboratory:** The Measurements Lab provides information from a special near-coastal observation site at Fort Ord in support of instruction and research in boundary layer and coastal meteorology. Present instrumentation includes two radar wind profilers, an automatic surface weather station, and rawinsonde systems.

### RESEARCH PROGRAM (Research and Academic)-FY2001:

The Naval Postgraduate School's sponsored program exceeded \$49 million in FY2001. Sponsored programs included both research and educational activities funded from an external source. A profile of the sponsored program for the Department of Meteorology is provided below:



Size of Program: **\$2550K**